WHAT IS CLAIMED IS:

1. An assembly comprising:

a base grid configured to be disposed below a pressure vessel and spaced vertically above a floor of a containment vessel to define a sump therebetween;

an annular wall extending vertically upwards from the floor and laterally bounding said base grid and said sump, said wall separating said sump from a suppression pool;

at least one flow baffle extending into said sump from said wall;

an inlet passage extending through said wall, said inlet passage providing flow communication between said sump and the suppression pool; and

an outlet passage extending through said wall, said outlet passage providing flow communication between said sump and the suppression pool.

2. The assembly according to Claim 1 wherein a substantially sinuous flow path is defined in said sump.

3. The assembly according to Claim 1 wherein said flow baffle has a base end and a tip end, said base end having a larger cross-sectional area than said tip end.

4. The assembly according to Claim 1 wherein said flow baffle has a flow inlet side and a flow outlet side.

5. The assembly according to Claim 4 wherein said inlet passage is positioned to discharge water from the suppression pool into said sump proximate said flow inlet side of said flow baffle.

6. The assembly according to Claim 1 wherein said inlet passage is substantially parallel to the floor.

7. The assembly according to Claim 4 wherein said outlet passage is positioned above said flow outlet side of said flow baffle.

8. The assembly according to Claim 1 wherein said outlet passage extends upwardly from said sump to the suppression pool.

9. An assembly comprising:

a containment vessel comprising a drywell and a floor;

a reactor pressure vessel installed inside said containment vessel;

a base grid disposed below said pressure vessel and spaced vertically above said floor of said containment vessel to define a sump therebetween;

an annular wall extending vertically upward from said base grid, said wall spaced inwardly from a sidewall of said containment vessel to define an annular channel therebetween;

at least one flow baffle in said sump;

an inlet flow channel extending through said annular channel providing flow communication between said drywell and said sump; and

an outlet flow channel extending through said annular channel providing flow communication between said sump and said drywell.

10. The assembly according to Claim 9 wherein a substantially sinuous flow path is defined in said sump.

11. The assembly according to Claim 9 wherein said at least one flow baffle includes a base end and a tip end, said base end having a larger cross-sectional area than said tip end.

12. The assembly according to Claim 9 wherein said at least one flow baffle includes a flow inlet side and a flow outlet side.

13. The assembly according to Claim 9 wherein said flow baffle has a partition extending upwardly therefrom and into said annular channel, said partition dividing said inlet flow channel from said outlet flow channel.

14. The assembly according to Claim 9 wherein said inlet and outlet flow channels extend substantially parallel to each other.

15. The assembly according to Claim 12 wherein said inlet flow channel provides flow communication for water from said drywell to said flow inlet side of said at least one flow baffle.

16. The assembly according to Claim 9 wherein said outlet flow channel provides flow communication for water from said sump to said drywell through convection.

17. A nuclear reactor comprising:

a primary containment comprising a floor;

a reactor pressure vessel located in said primary containment;

a drywell located in said primary containment and disposed above said reactor pressure vessel;

a suppression pool located in said primary containment and disposed adjacent said reactor pressure vessel; and

a core cooling system located in said primary containment and disposed below said reactor pressure vessel, said core cooling system comprising:

a base grid having a top plate and a bottom plate, said base grid spaced vertically above said floor of said containment vessel to define a sump therebetween;

a substantially sinuous flow path defined in said sump;

an inlet passage providing flow communication between said sump and at least one of said drywell and said suppression pool; and

an outlet passage providing flow communication between said sump and at least one of said drywell and said suppression pool, said inlet and outlet passages configured to circulate water between said sump and at least one of said drywell and said suppression pool through convection.

18. The nuclear reactor according to Claim 17 further comprising at least one flow baffle in said sump.

19. The nuclear reactor according to Claim 18 wherein said flow baffle has a base end and a tip end, said base end having a larger cross-sectional area than said tip end.

20. The nuclear reactor according to Claim 17 further comprising an annular wall extending vertically upward from said floor and laterally bounding said base grid and said sump, said wall separating said sump from said suppression pool.

21. The nuclear reactor according to Claim 20 wherein said inlet and outlet passages extend through said annular wall.

22. The nuclear reactor according to Claim 17 further comprising an annular wall extending vertically upward from said base grid, said annular wall spaced inward from a sidewall of said containment vessel to define an annular channel therebetween.

23. The nuclear reactor according to Claim 22 wherein said inlet and outlet passages are disposed in said annular channel.

24. The nuclear reactor according to Claim 17 wherein said base grid is substantially cone shaped.

25. The nuclear reactor according to Claim 17 further comprising a cone coupled to said bottom plate.